



International Centre for Genetic Engineering and Biotechnology

# International Co-operation in Biotechnology

The example of ICGEB and its  
potential role in the implementation  
of Article X of the Biological  
Weapons Convention





# THE BEGINNING

- ◆ **1983**: The Statutes of the Centre are signed in Madrid
- ◆ **1984**: The site is decided: one Centre made of two Components (Trieste and New Delhi) and a network of Affiliated Centres
- ◆ **1987**: Pending the entry into force of the Statutes, the Centre Starts operating as a special project of UNIDO.



## **AUTONOMY & INDEPENDENCE**

- ◆ **1994**: The Statutes enter into force; the ICGEB becomes an autonomous intergovernmental organization. UNIDO and ICGEB agree to an interim period during which the former will continue administering the funds of the Centre.
- ◆ **1996**: the ICGEB takes over from UNIDO all administrative, legal and financial responsibilities related to the activities of the Centre. The management of the Centre is located at the Directorate, in Trieste.





# THE NEW DELHI COMPONENT





# THE TRIESTE COMPONENT





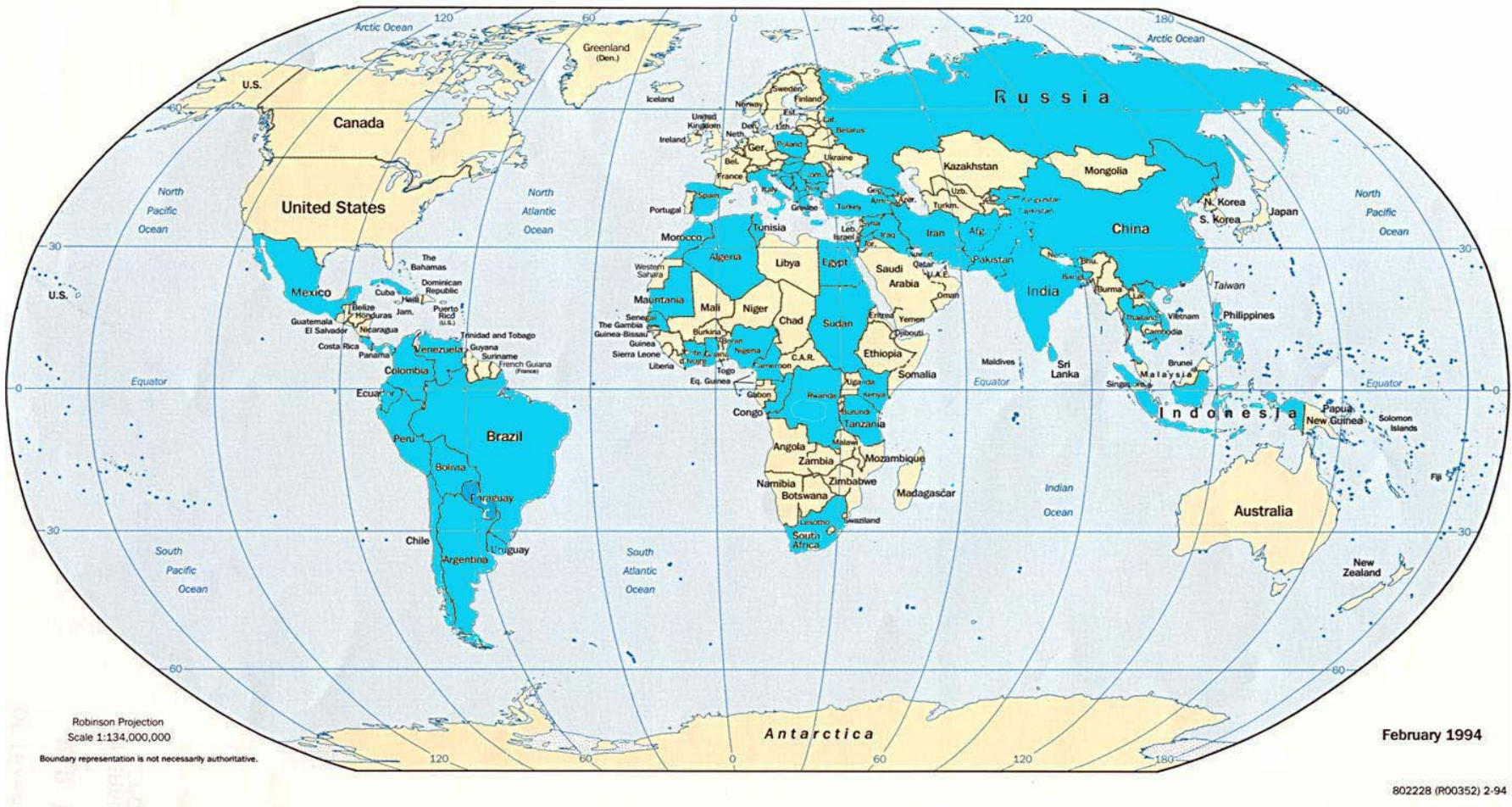
# THE ICGEB MANDATE

**To provide a Centre of excellence for  
research and training in genetic  
engineering and biotechnology addressed  
to developing countries**



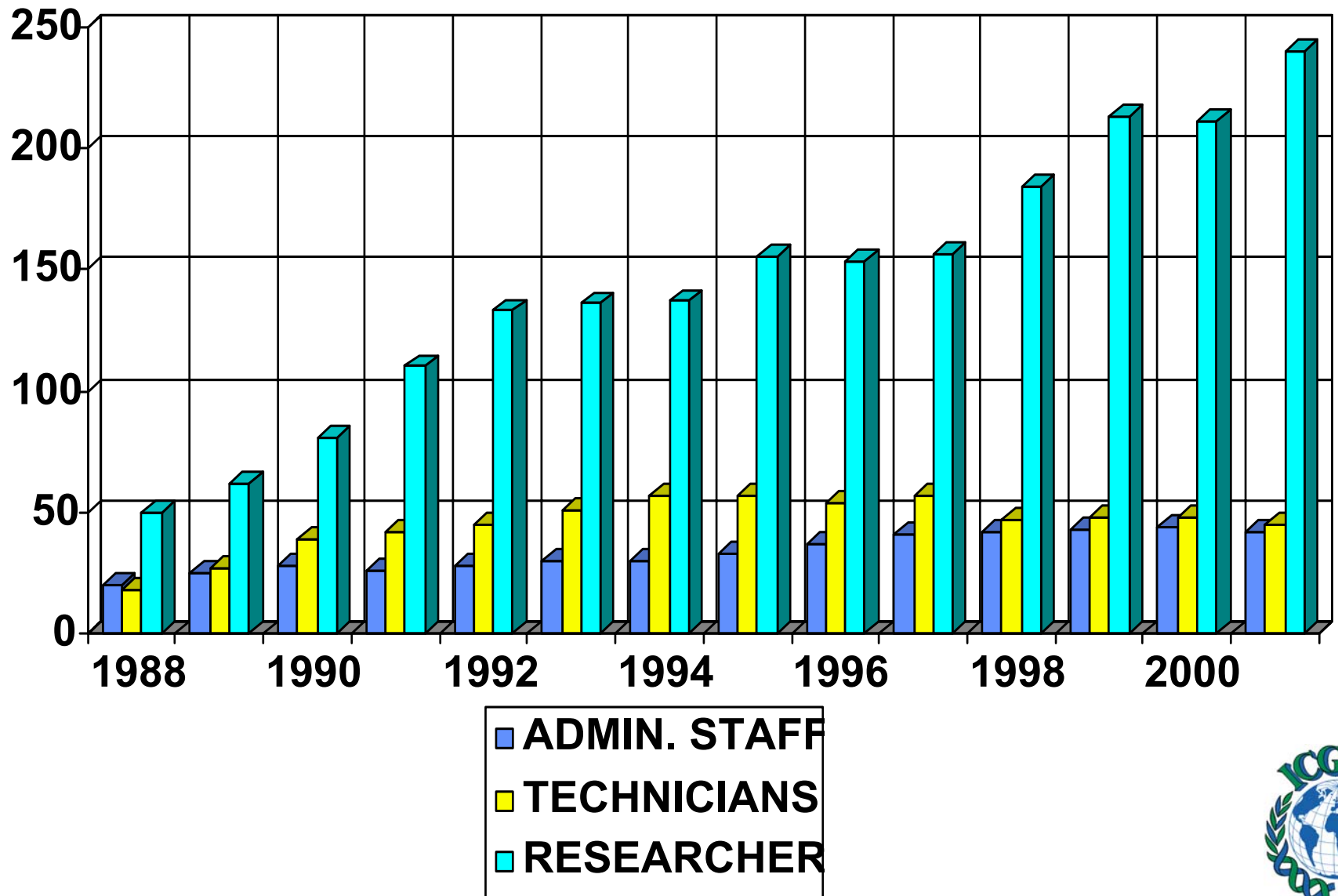


# ICGEB: an intergovernmental organization



**66 Signatory States, 47 Member States, 2 Components: Trieste (Italy) - New Delhi (India) and a network of 33 Affiliated Centres**

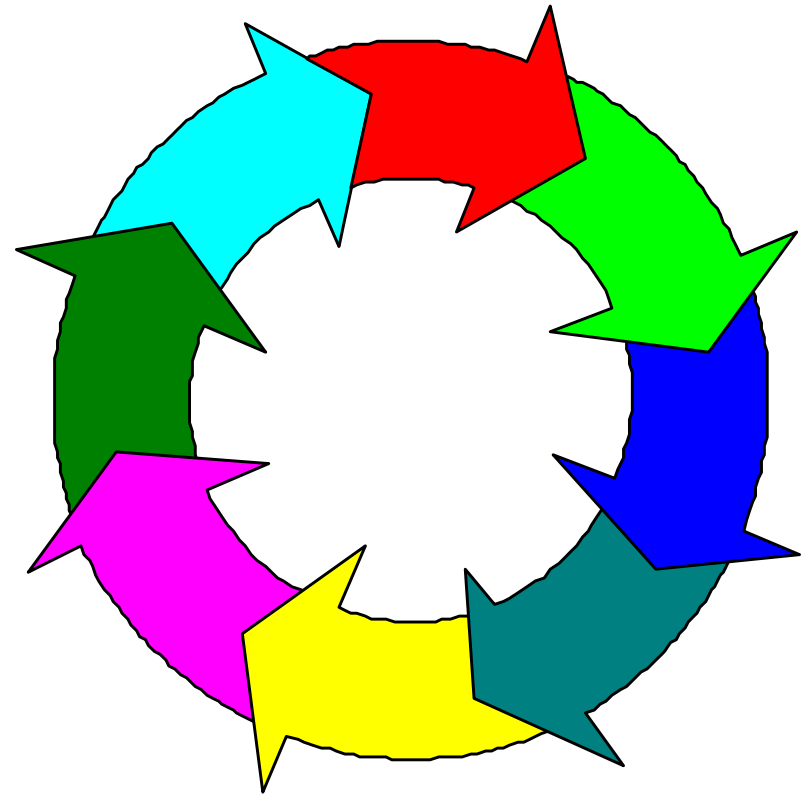
# THE ICGB POPULATION





# INSTRUMENTS OF ACTION

- ◆ **RESEARCH PROJECTS**
- ◆ **LONG TERM TRAINING**
- ◆ **SHORT TERM TRAINING**
- ◆ **COLLABORATIVE RESEARCH PROGRAMME**
- ◆ **COOPERATION WITH INDUSTRIAL SECTOR**
- ◆ **SCIENTIFIC SERVICES**
- ◆ **INSTITUTIONAL SERVICES**



# MAIN AREAS OF THE ICGEB RESEARCH PROGRAMME

## HUMAN HEALTH

- ➡ INFECTIOUS DISEASES
- ➡ VACCINE PRODUCTION
- ➡ GENETIC DISEASES

## PLANT BIOLOGY

- ➡ PLANT TRANSFORMATION
- ➡ STRESS RESISTANCE
- ➡ CROP IMPROVEMENT





# SHORT TERM TRAINING PROGRAMME

- ◆ **THEORETICAL COURSES**
- ◆ **PRACTICAL COURSES**
- ◆ **CONFERENCES**
- ◆ **INTERNATIONAL SYMPOSIA**
- ◆ **FORUM OF SCIENTISTS**
- ◆ **WORKSHOPS**





# FELLOWSHIP PROGRAMMES

## PRE-DOCTORAL FELLOWSHIPS

(3-4 YEARS)

IN COLLABORATION WITH:

INT. SCHOOL ADVANCED STUDIES (SISSA)

SCUOLA NORMALE SUPERIORE (SNS) - PISA

OPEN UNIVERSITY (UK)

JAWAHARLAL NEHRU UNIVERSITY (JNU)



## POST-DOCTORAL FELLOWSHIPS

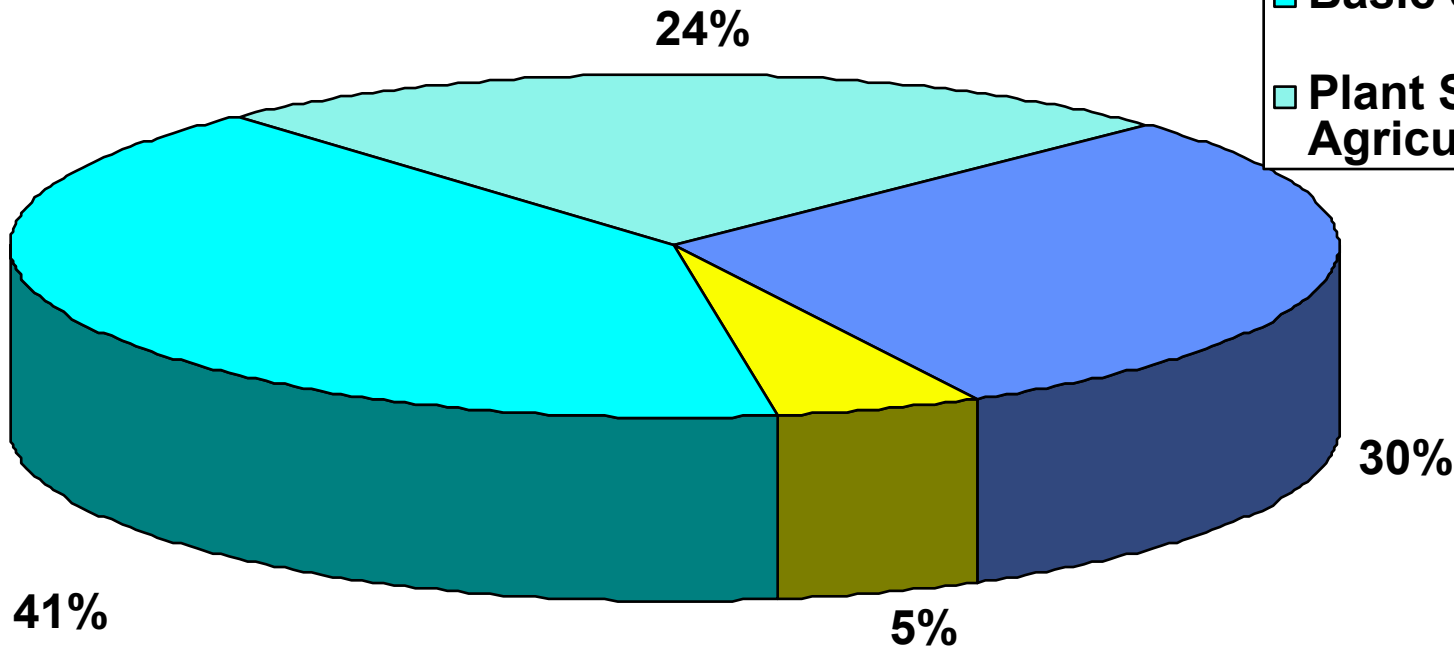
(3 MONTHS TO 3 YEARS)

SCIENTISTS FROM MEMBER STATES ARE  
FULLY INCORPORATED IN RESEARCH  
GROUPS AT TRIESTE, NEW DELHI,  
AFFILIATED CENTRES AND SELECTED  
ITALIAN LABORATORIES



# COLLABORATIVE RESEARCH PROGRAMME

Scientific classification of funded projects





# COLLABORATION WITH THE INDUSTRIAL SECTOR

- ◆ **PATENTS: A WAY TO PROVIDE INNOVATIVE TECHNOLOGY TO DEVELOPING COUNTRIES, COMPETITIVE WORLDWIDE**
- ◆ **BIOPHARMACEUTICAL GENERICS: AN EXPANDING MARKET ACCESSIBLE THROUGH INNOVATIVE METHODOLOGIES**





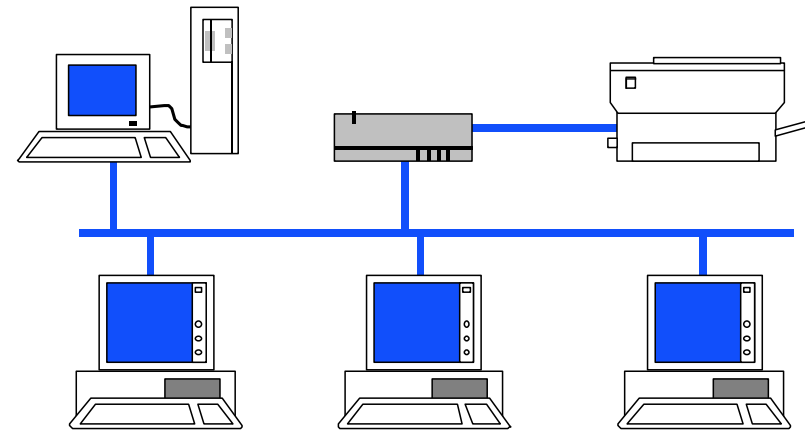


# TECHNICAL SUPPORT

## ICGEBnet

- ◆ **ADVANCED COMPUTER LABORATORY**
- ◆ **ACCESS TO A FULL RANGE OF STATE-OF-THE-ART BIOCOMPUTATIONAL FACILITIES**
- ◆ **REMOTE LOGIN TO MAJOR U.S. AND EUROPEAN PUBLIC DOMAIN DATABASES**
- ◆ **ICGEB WEB SITE:**

<http://www.icgeb.org>





# INSTITUTIONAL ACTIVITIES

- ◆ **CO-OPERATION AGREEMENT WITH THE UNITED NATIONS (+UNIDO, UNESCO, WHO, ETC.)**
- ◆ **JOHANNESBURG SUMMIT ON SUSTAINABLE DEVELOPMENT (RIO +10)**
- ◆ **OBSERVER STATUS WITH THE ECONOMIC AND SOCIAL COUNCIL (ECOSOC)**
- ◆ **ARTICLE X OF THE BIOLOGICAL WEAPONS CONVENTION**
- ◆ **BIOSAFETY AND RISK ASSESSMENT OF GMOs**





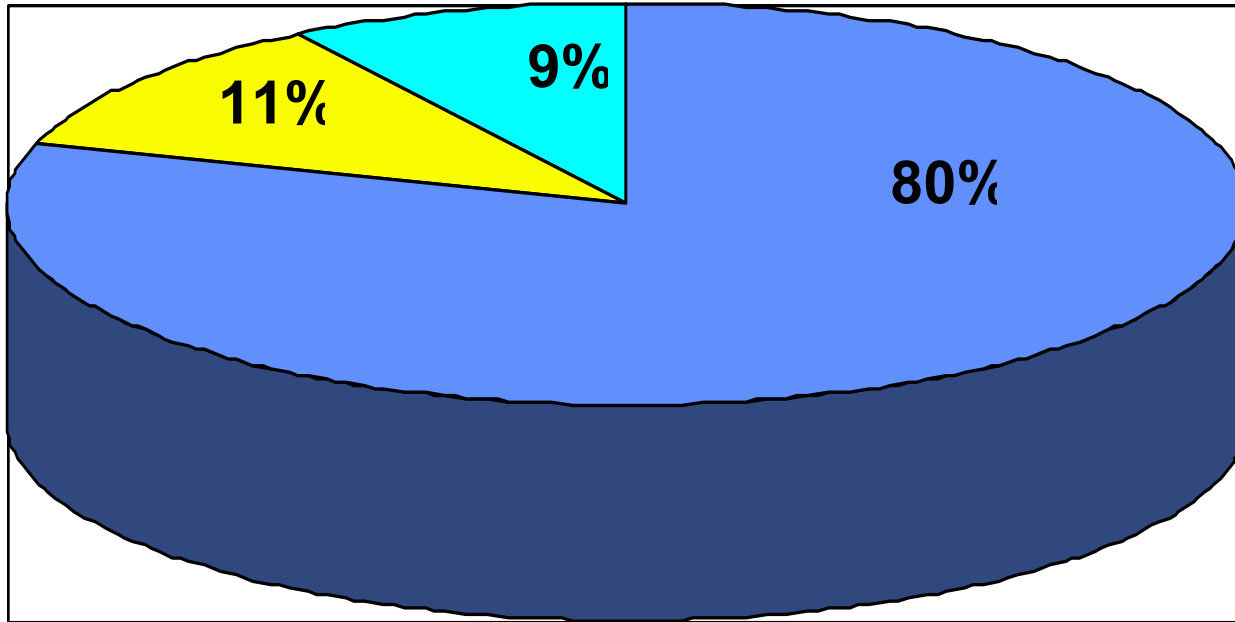
## 15 YEARS OF ACTIVITY IN A FEW NUMBERS...

- ◆ **21 PATENT APPLICATIONS FILED;**
- ◆ **48 AGREEMENTS WITH INDUSTRIES;**
- ◆ **155 COURSES, SYMPOSIA, CONFERENCES AND MEETINGS;**
- ◆ **300 COLLABORATIVE RESEARCH PROJCTS;**
- ◆ **450 FELLOWSHIPS, CORRESPONDING TO 700 MAN/YEARS OF PRE AND POST-DOCTORAL TRAINING;**
- ◆ **OVER 800 PUBLICATIONS IN PEER-REVIEWED INTERNATIONAL JOURNALS;**
- ◆ **OVER 9,000 TRAINEES FROM DEVELOPING COUNTRIES;**
- ◆ **10,000,000 US\$ WORTH OF EXTERNAL FUNDS AND GRANTS.**



# FUNDING

2002 BUDGET = US \$ 12,500,000



- ITALIAN GOVERNMENT
- INDIAN GOVERNMENT
- OTHER M/S & EXTERNAL FUNDS



# **ARTICLE X of the BWC and the ICGEB STATUTES**

- 1. *THE STATES PARTIES TO  
THIS CONVENTION  
UNDERTAKE TO  
FACILITATE , AND HAVE  
THE RIGHT TO  
PARTICIPATE IN , THE  
FULLEST POSSIBLE  
EXCHANGE OF  
EQUIPMENT, MATERIALS  
AND SCIENTIFIC AND  
TECHNOLOGICAL INFOR-  
MATION FOR THE USE OF  
BIOLOGICAL AGENTS FOR  
PEACEFUL PURPOSES***

**THE OBJECTIVES OF THE  
ICGEB ARE:**

- a) TO PROMOTE  
INTERNATIONAL CO-  
OPERATION IN DEVELOPING  
AND APPLYING PEACEFUL  
USES OF GENETIC  
ENGINEERING AND  
BIOTECHNOLOGY, IN  
PARTICULAR FOR DEVELO-  
PING COUNTRIES.**
- b) TO ASSIST DEVELOPING  
COUNTRIES IN STRENGTH-  
NING THEIR SCIENTIFIC AND  
TECHNICAL CAPABILITIES.**

# **ARTICLE X V.S. ICGEB STATUTES**

***1bis:PARTIES TO THE CONVENTION, IN A POSITION TO DO SO, SHALL ALSO CO-OPERATE IN CONTRIBUTING INDIVIDUALLY OR WITH OTHER STATES OR INTERNATIONAL ORGANIZATIONS TO THE FURTHER DEVELOPMENT AND APPLICATION OF SCIENTIFIC DISCOVERIES IN THE FIELD OF BIOLOGY FOR PREVENTION OF DISEASES OR FOR OTHER PEACEFUL PURPOSES.***

**THE OBJECTIVES OF THE ICGEB ARE:**

- c) TO STIMULATE AND ASSIST ACTIVITIES AT REGIONAL AND NATIONAL LEVELS.**
- d) TO DEVELOP AND PROMOTE APPLICATION OF GENETIC ENGINEERING AND BIOTECH. FOR SOLVING PROBLEMS OF DEVELOPMENT, PARTICULARLY IN DEVELOPING COUNTRIES.**

# **ARTICLE X V.S. ICGEB STATUTES**

***2. THIS CONVENTION SHALL BE IMPLEMENTED IN A MANNER DESIGNED TO AVOID HAMPERING THE ECONOMIC OR TECHNOLOGICAL DEVELOPMENT OF STATES, OR INTERNATIONAL CO-OPERATION IN THE FIELD OF PEACEFUL BIOLOGICAL ACTIVITIES, INCLUDING INTERNATIONAL EXCHANGE OF BIOLOGICAL AGENTS AND TOXINS AND EQUIPMENT FOR THE PROCESSING, USE OR PRODUCTION OF BIOLOGICAL AGENTS AND TOXINS FOR PEACEFUL USES, IN ACCORDANCE WITH THE PROVISIONS OF THE CONVENTION.***

**THE OBJECTIVES OF THE ICGEB ARE:**

- e) TO SERVE AS A FORUM OF EXCHANGE OF INFORMATION, EXPERIENCE AND KNOW-HOW AMONG SCIENTISTS AND TECHNOLOGISTS OF MEMBER STATES.**
- f) TO UTILIZE THE SCIENTIFIC AND TECHNOLOGICAL CAPABILITIES OF DEVELOPING AND DEVELOPED COUNTRIES IN THE FIELD OF GENETIC ENGINEERING AND BIOTECH.**
- g) TO ACT AS A FOCAL POINT OF A NETWORK OF AFFILIATED RESEARCH AND DEVELOPMENT CENTRES.**

# THE GENEVA DRAFT PROTOCOL - ART. VII

- ◆ **ENHANCEMENT OF INTERNATIONAL CO-OPERATION**
- ◆ **INCREASING THE EFFECT OF CONFIDENCE BUILDING MEASURES**
- ◆ **ADDED VALUE ELEMENT FOR DEVELOPING COUNTRIES TO ACCEDE THE BWC**
- ◆ **BREAKING POTENTIAL SCIENTIFIC ISOLATION**



# ***SPECIFIC ACTIVITIES WITH INTERNATIONAL ORGANIZATIONS***

- ◆ **THE COLLECTION AND DISSEMINATION OF INFORMATION ON THE PEACEFUL USES OF BIOLOGICAL AGENTS AND TOXINS;**
- ◆ **SHARING INFORMATION ON ENVIRONMENTAL RELEASE OF GENETICALLY MODIFIED ORGANISMS;**
- ◆ **CURRENT GMP, GLP, BIOLOGICAL CONTAINMENT AND OTHER BIOSAFETY REGULATIONS AND PRACTICES;**
- ◆ **FACILITATION OF ACCESS TO DATABASES CONTAINING INFORMATION ON THE PEACEFUL USES OF BIOLOGICAL AGENTS, BIOSAFETY, AND RESULTS OF SCIENTIFIC RESEARCH IN LIFE SCIENCES;**
- ◆ **THE COLLECTION AND DISSEMINATION OF INFORMATION ON THE DIAGNOSIS, SURVEILLANCE, DETECTION, TREATMENT AND PREVENTION OF INFECTIOUS DISEASES;**
- ◆ **REGULATIONS GOVERNING THE HANDLING, TRANSPORTATION, USE AND RELEASE OF BIOLOGICAL AGENTS.**

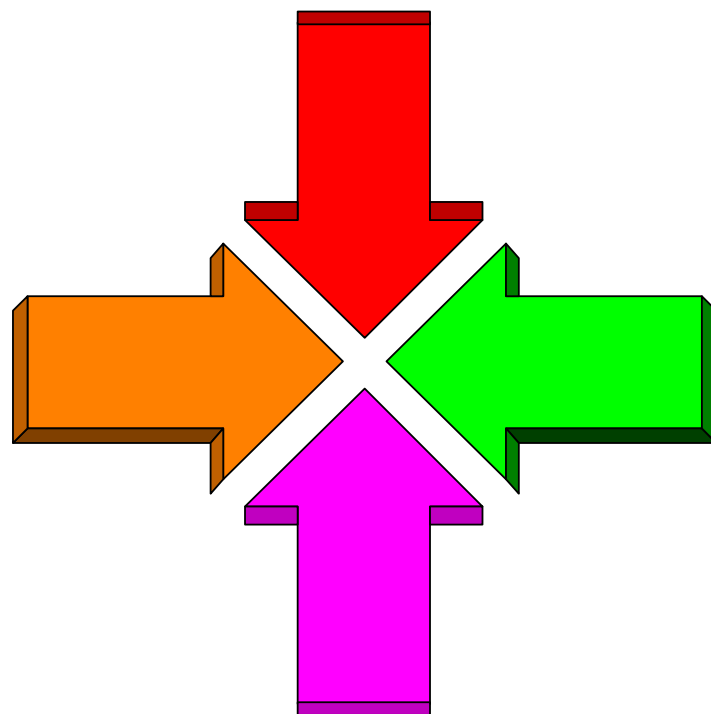
# **RESUMED FITH REVIEW CONFERENCE OF THE BWC (GENEVA, 11-15 NOVEMBER 2002)**

- ◆ **STRENGTHENING NATIONAL AND INTERNATIONAL EFFORTS FOR SURVEILLANCE AND DIAGNOSIS, COMBATING INFECTIOUS DISEASES AFFECTING HUMANS ANIMALS AND PLANTS;**
- ◆ **DESIGN, PROMULGATION AND ADOPTION OF AN INTERNATIONAL CODE OF CONDUCT FOR SCIENTISTS**



# **ICGEB: A CLEARING HOUSE MECHANISM**

- ◆ ***FLOW OF INFORMATION TO AND FROM THE DEVELOPING WORLD***
- ◆ ***NETWORKING ARRANGEMENTS WITH ITS 33 AFFILIATED CENTRES***
- ◆ ***AN INTERNATIONAL FORUM IN WHICH SENSITIVE ISSUES ARE DEBATED ON A PURELY SCIENTIFIC BASIS***
- ◆ ***IN ADDITION TO THE BWC, ICGEB PROVIDES INFORMATION AND THE POSSIBILITY TO ADDRESS ISSUES RELATED TO BIOSAFETY, BIO-DIVERSITY AND INTELLECTUAL PROPERTY RIGHTS.***





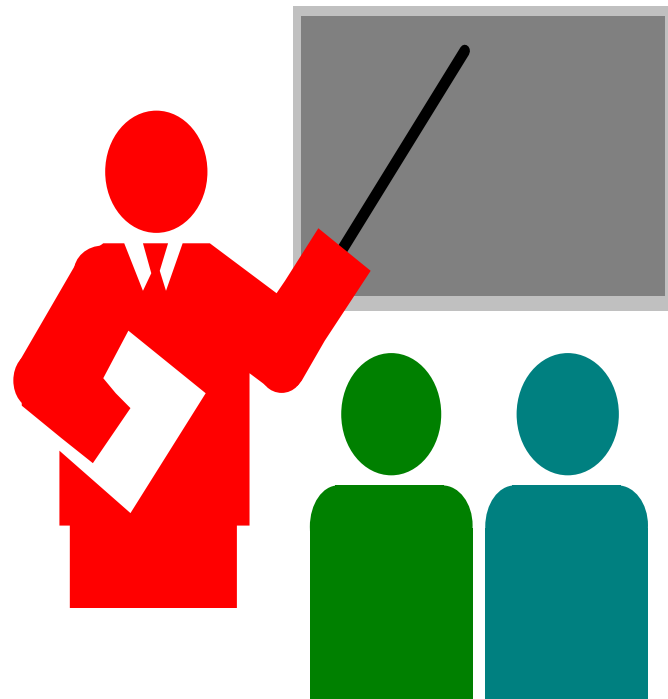
# ***A POSSIBLE ROLE***

## ***A PROPOSAL***

***ENLARGEMENT OF ICGEB'S TRAINING PROGRAMME THROUGH COURSES ON BIOSAFETY, VIROLOGY, MOLECULAR BIOLOGY. NEW CURRICULA FOR COURSES ON GLP AND GMP REGULATORY ASPECTS.***

## ***SCOPE***

***TO PROVIDE TECHNICAL ASSISTANCE FOR THE UPGRADING OF NATIONAL BIOSAFETY PRACTICES AND FOR THE PROMOTION OF LOCAL BIO-INDUSTRY.***





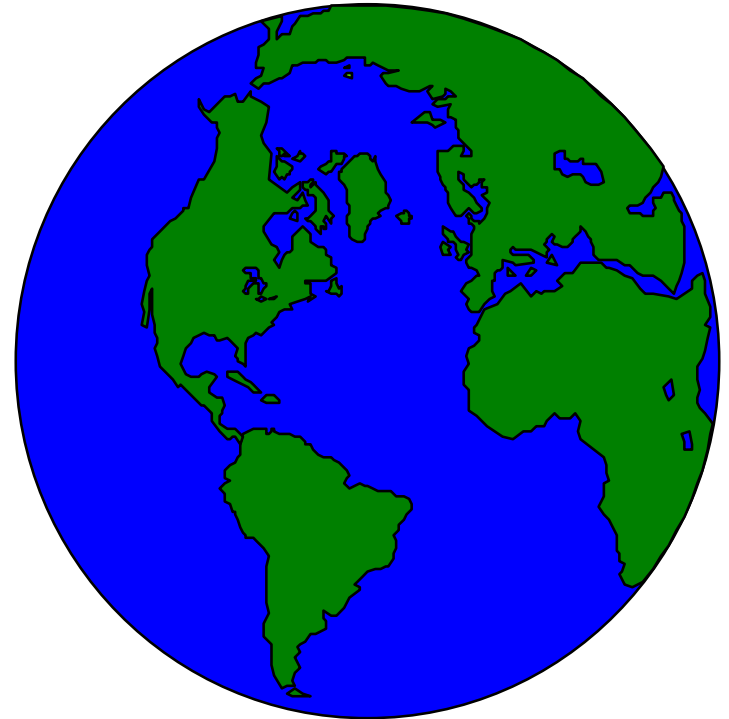
# ***A POSSIBLE ROLE***

## ***A PROPOSAL***

***INCREASE THE NUMBER OF  
RESEARCH PROJECTS FUNDED  
BY THE ICGEB IN THE FRAME-  
WORK OF THE COLLABORATIVE  
RESEARCH PROGRAMME***

## ***SCOPE***

- ◆ ***INFORMATION ON OUTBREAKS  
OF EMERGING DISEASES;***
- ◆ ***PRODUCTION OF NEW VACCINES,  
DIAGNOSTICS AND REAGENTS;***
- ◆ ***IMPROVE CONDITIONS OF LIFE;***
- ◆ ***RAISE LEVEL OF CONFIDENCE  
AMONG THE STATES PARTIES TO  
THE CONVENTION.***





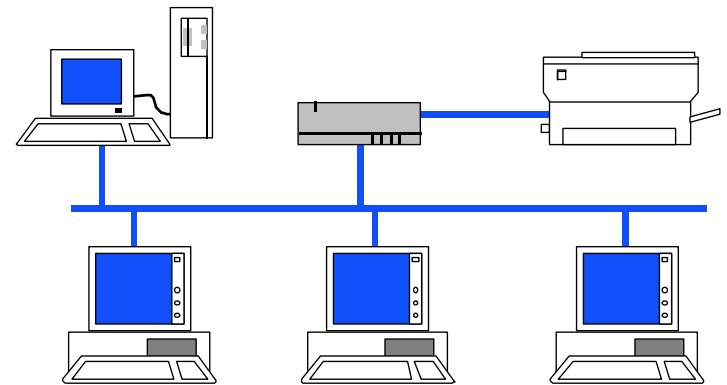
# ***A POSSIBLE ROLE***

## ***A PROPOSAL***

***STRENGTHEN THE INFORMATION SERVICES DEVELOPED BY ICGEB: ICGEBNET, BIOSAFETY DATABASE.***

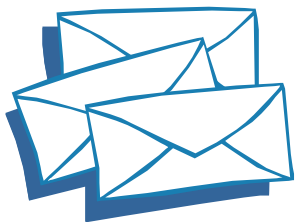
## ***SCOPE***

- ◆ ***PROVIDE IMPORTANT TOOLS FOR RESEARCH;***
- ◆ ***BECOME MAJOR REPOSITORIES OF DATA ON GMP AND GLP, SAFE LABORATORY PROCEDURES AND BIOLOGICAL CONTAINMENT;***
- ◆ ***PROVIDE INFORMATION ON GMO RELEASES AND OTHER ISSUES ENTAILING ENVIRONMENTAL RISKS.***





## ***ICGEB Institutional Services***



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